



HASAN KALYONCU UNIVERSITY
Faculty of Engineering
Course Description Form

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|---|-------------------------|------------------|---------------|-------------|
| COURSE: Foundation Engineering | | | | |
| CODE: CE461 | SEMESTER: FALL | | | |
| LANGUAGE: ENGLISH | TYPE: COMPULSORY | | | |
| PRE-REQUISITES: - CO-REQUISITES: - | THEORY | PRACTICAL | CREDIT | ECTS |
| WEEKLY HOURS: 3 | 3 | 0 | 3 | 5 |

CONTENT OF THE COURSE:

Stress distributions beneath foundations, settlement and bearing capacity concepts for shallow foundations, design of shallow foundation and retaining structures.

OBJECTIVE OF THE COURSE:

To enable students to design shallow foundations and retaining structures at basic level.

WEEKLY SCHEDULE AND PRE-STUDY PAGES

| Week | Topics |
|-------------|---|
| 1 | Introduction to foundation engineering |
| 2 | Stress distributions under shallow footings-elastic methods |
| 3 | Stress distributions under shallow footings-elastic methods |
| 4 | Elastic settlement under shallow footings |
| 5 | Consolidation settlement under shallow footings |
| 6 | Bearing capacity for shallow footings |
| 7 | Bearing capacity for shallow footings |
| 8 | Midterm Week |
| 9 | Base reactions under shallow footings |
| 10 | Base reactions under shallow footings |
| 11 | Subgrade modulus concept-Winkler Model |
| 12 | Types and behavior of retaining structures |
| 13 | Design principles of retaining structures |
| 14 | Design principles of retaining structures |

TEXTBOOK:

- Principals of Foundation Engineering (Braja M. Das)

| EVALUATION SYSTEM: | | |
|--|-----------------|-----------------------|
| IN-TERM STUDIES | QUANTITY | PERCENTAGE (%) |
| Midterm Exam | 1 | 40 |
| Homework | 0 | 0 |
| Laboratory works | 0 | 0 |
| Quiz | 0 | 0 |
| Final Exam | 1 | 60 |
| TOTAL | 2 | 100 |
| CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE | 1 | 40 |
| CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE | 1 | 60 |
| TOTAL | 2 | 100 |

| COURSE CATEGORY: | PERCENTAGE (%) |
|--------------------------------|-----------------------|
| Mathematics and Basic Sciences | 20 |
| Engineering | 40 |
| Engineering Design | 40 |
| Social Sciences | 0 |

| TABLE OF ECTS / WORKLOAD: | | | |
|---|-----------------|------------------------|-----------------------|
| Activities | QUANTITY | Duration (Hour) | Total Workload |
| Course Duration | 13 | 3 | 39 |
| Hours for off-the-classroom study (Pre-study, practice) | 14 | 7 | 98 |
| Laboratory works | 0 | 0 | 0 |
| Mid-term | 1 | 2 | 2 |
| Final examination | 1 | 2 | 2 |
| Homework | 0 | 0 | 0 |
| Quiz | 0 | 0 | 0 |
| Total Work Load | | | 141 |
| Total Work Load / 30 | | | 4,7 |
| ECTS Credit of the Course | | | 5 |

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 |
|------------|--|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|
| LO1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LO2 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LO3 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LO4 | 2 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LO5 | 2 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | PO: Program Outcomes LO: Learning Outcomes Values: 0: None 1: Low 2: Medium 3: High | | | | | | | | | | |

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| INSTRUCTOR(S): | Asst. Prof. Dr. Volkan Kalpakcı |
| FORM PREPARATION DATE: | 22.05.2019 |

| LEARNING OUTCOMES OF THE COURSE: | PROGRAM OUTCOMES: |
|--|--|
| <p>LO1: Shallow foundation types. LO2: Foundation behavior under loading. LO3: Calculation of total and differential settlement of foundations. LO4: Bearing capacity calculation. LO5: Design of retaining structures.</p> | <p>PO1: Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems. PO2: Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose. PO3: Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose. PO4: Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively. PO5: Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions. PO6: Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually. PO7: Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions. PO8: Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself. PO9: Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice. PO10: Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development. PO11: Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.</p> |